FACTORS INFLUENCING CUSTOMER ADOPTION OF MOBILE BANKING SERVICES IN TANZANIA

GRACE MAKONGORO

A DISSERTATION SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION OF THE OPEN UNIVERSITY OF TANZANIA

2014

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the Open University of Tanzania a dissertation entitled: "Factors Influencing Customer Adoption of Mobile Banking Services in Tanzania", in partial fulfillment of the requirements for the degree of Master of Business Administration.

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Dr Tumaini Katunzi

(Supervisor)

……

Date

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DECLARATION

I, Grace Makongoro, do hereby declare that this dissertation is my original work. It has never been presented to any other University or Institution for similar or any other award. Where other people's works have been used, references have been provided.

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Signature

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Date

DEDICATION

This work is dedicated to my parents, Mr and Mrs Makongoro.

ABSTRACT

The continuous expansion of technological innovations especially in the banking sector have stirred competition which has changed the way businesses operate resulting in the introduction of mobile banking in Tanzania. This study was conducted in order to analyze the factors that influence consumer adoption of mobile banking in Tanzania. A questionnaire was developed and then distributed to customers of major mobile banking service providers in Tanzania. Using primary data collection method, from the 150 questionnaires that were distributed 105 questionnaires was successfully returned but only 95 were useable for analysis yielding a 62.7% response rate. After gathering and entering the data in SPSS the results were analyzed using multiple regression analysis. Each variable was measured using 5-point Likert-scale. The results suggested that perceived risk, relative advantage and convenience are the determinant factors in influencing consumers' adoption decisions. It's been recommended that banks in Tanzania invest massively in mobile banking and other information technology innovations in order to further promote efficient service delivery and increase adoption of mobile banking services.

Key words: Mobile banking, multiple regressions, Perceived Risk, Trust, Convenience, Relative Advantage.

ACKNOWLEDGEMENT

I would like to take the opportunity to acknowledge the support and help of all who have assisted me in the research and made this Dissertation a dream come true. Without their contribution and advice, I would have never been able to progress with the work.

I would also like to thank all those people who made this an unforgettable experience for me. Foremost, I would like to express my sincere gratitude to my supervisor, Dr. Tumaini Katunzi, for the continuous support throughout the Research, for his patience, motivation, enthusiasm, and immense knowledge.

Last but not least, Special appreciation to all the respondents for their precious time and patience in helping me to complete the questionnaire. It would have been impossible to complete my research without their contribution and help.

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LIST OF ABBREVIATIONS AND ACRONYMS

PC	Perceived credibility
PEOU	Perceived ease of use
SEM	Structure equation modeling
ETAM	Extended technology acceptance model
CRDB	Community and rural development bank
SMS	Short message service
PDA	Personal digital assistant
TAM	Technology acceptance model
UTAUT	Unified theory of acceptance and use of technology
PU	Perceived usefulness
MB	Mobile banking
TPB	Theory of planned behavior
TRA	Theory of reasoned action
CTPB	Combined theory of planned behavior
IDT	Innovation diffusion theory
PSE	Perceived self-efficacy
IDT	Information diffusion theory
BI	Behavior intention
PBC	Perceived behavior control
ATB	Attitude toward performing behavior
SN	Subjective norm
SPSS	Statistical package for the social science

CHAPTER ONE

1.0 INTRODUCTION

1.1. Background

Mobile banking is an innovative technology that has gained popularity in Africa and other parts of the world. Mobile banking services consist of things such as balance enquiry, fund transfer among other services. The adoption of mobile banking has brought about changes in banking operations following the advancement of mobile communication techniques and the collaboration with mobile service providers as a result, the mobile banking technology has become more conductive to individuals and banking sector.

Up to the early 2000's implementation of mobile banking technology was still at its trial and error phase for many countries. Like any other system, it had many challenges not only for the customers but also for the service providers, the service improved and became more effective but also user friendly as years went by, considering mobile phones continuous inventions provided a blend in platforms. According to Lee, Lee and Kim (2007) mobile banking services have managed to provide freedom of time along with cost savings to its users and room for market growth for the service providers.

The mobile phone menu and other extra up to date applications can now connect bank systems to the phone network, hence introduction to more user friendly interfaces. Consumers can now enjoy financial services anytime and anywhere

(cheah et al, 2011). In 2008 there were over 1.9 million customers who were using mobile banking through bank of America alone (Morrison's, 2012).

In Tanzania, banks and other financial sectors in conjunction with mobile service providers have complemented each other in providing banking services that have tremendously reduced time consumption but also improved performance. The services have no limits in terms of geographical location and are user friendly (Porteous, 2006). There is need to expand the services to the unbanked especially those in rural areas as a result a growing number of banks have adopted the mobile banking technology in Tanzania such are, CRDB in 2008, Standard Chatered bank in 2009 and Amana bank in 2012, this has enabled such banks in Tanzania to shorten the time used in conducting financial services but also improve the delivery of bank services to customers. The only barrier to mobile banking will be the mobile phone (Sarker and Wells,2003).

1.2. Statement of the Problem

Banks are instrumental systems for economic development of any country. One of the most innovative technological changes in the banking industry in Tanzania was the introduction of mobile banking. In Tanzania, many banks have implemented mobile banking technology services but are yet to gain a larger customer adoption rate.

Therefore the study sought to find out from the consumer perspective, the factors that influence consumer adoption of mobile banking services in Tanzania with special reference to perceived risk, relative advantage, trust and convenience.

1.3 Objectives

1.3.1 Main Objective

- To identify the factors influencing the adoption of Mobile banking services in Tanzania.

1.3.2 Specific Objectives

- To determine whether convenience (perceived usefulness & perceives ease of use) of using plays a role in adoption of mobile banking in Tanzania.
- To determine whether relative advantage (in terms of cost and time) influence choosing mobile banking in Tanzania.
- To determine whether Trust can influence choosing mobile banking in Tanzania.
- To determine whether perceived risk can influence choosing mobile banking in Tanzania.

1.4 Research Hypothesis

H1: Perceived risk will have a negative effect in influencing mobile banking adoption

H2: Relative advantage will have a positive influence on mobile banking adoption

H3: Trust will have a positive influence on mobile banking adoption

H4: Convenience will have a positive effect on mobile banking adoption

1.5 Justification

Ever since the introduction of mobile banking in Tanzania, the numbers of subscribers and transactions have never been higher than those of other payment

systems. This can be seen in the bank of Tanzania report (2013) mobile banking transactions reached 243.7 million as of 2013 while mobile money transactions reached 12,389 billion in 2013.

Therefore there is need to understand mobile banking adoption by investigating factors that influence adoption and this will act as guidance for bankers in strategic planning and decision making. If the influencing factors will be understood mobile banking transactions will increase like other payment systems.

1.6 Significance of the Study

The significance of this study was:

- The study attempts to provide a better understanding of the factors that influence the adoption of mobile banking services in Tanzania.
- The variables in several theories and models that have already been explored by other researchers in the past were also applied in the research to study its effect on the study.
- The study provides a basis for future researchers in the banking industry in Tanzania and abroad.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Conceptual Definitions

2.1.1 Adoption

Adoption in the context of mobile banking means acceptance, being able to accept a new technology as it is introduced and by accepting the service means a customer willing to use the service.

If a customer chooses to adopt mobile banking service, Mallat et al,(2004) explains that they will be able to obtain and interact with mobile services anytime and anywhere which in turn initiate great value for them. Cruz et al (2010) and Dasgupta et al (2011) also suggested that if one adopted this service it had great potential to provide reliable services to anyone in any location even those limited by facilities.

2.1.2 Customer

A customer is an individual who uses a service whereas in this context it means an individual that uses mobile banking services.

2.1.3 Mobile Banking

Mobile banking is an electronic banking system which allows customers to get access to their bank accounts via SMS (supported by telecommunication networks), website of the bank (internet) and smart phone applications. The service offered when using mobile banking is such as withdrawal, deposits and bill payments.

Barnes, and Corbitt (2003) defined mobile banking as a situation whereby the customer interacts with a bank via mobile device, such as mobile phone and Personal Digital Assistant (PDA).

2.2 Theoretical Review

2.2.1 Trust and Perceived Risk

Trust is associated with ability, integrity and goodwill while perceived risk is associated with security, psychological and privacy. Curral and judge (1995) defined trust as a tendency to rely on another party or company under condition of dependence and risk. The relation that exists between the two variables is that Perceived risk is viewed as a limitation toward use while trust in this case is the willingness to assume risk.

According to Meyer's et al (1995) the difference between risk and trust is the ability and "willingness to assume risk" This means that there is no risk taken in a customer's willingness to trust but by accepting and using mobile banking the user is already taking a risk and accepting the outcome.

Therefore, if the service fails it means the user was already putting himself in a vulnerability position and has to face the consequences, these two variables tend to be associated because in one way or another, they are negatively linked together thus if you trust in a certain service you automatically accept risk that you would face later if the service fails, hence the level of consumer trust in mobile banking influence their adoption of the service.

2.2.2 Relative Advantage and Trust

Relative advantage is associated with time and cost; According to Williamson (1993) "individuals use the aspect of cost of product or service to make the decision to trust or not to trust".

Relative advantage and trust can either be positively or negatively related to each other, it all depends on what the consumer chooses to believe in but in most cases positively related. Before making a decision to use a service or product most consumers will look at the cost of that product and that's where the decision to use will be derived from, also for the case of the time used in conducting a service, time conscious customers will use time to judge the service provider which in this case is the time used to make transactions, if anything happens in between the purchase say, the network fails, this can affect some customers because they may render the service unreliable and hence decide not to use the service.

2.2.3 Convenience and Trust

According to Davies (1989) the Technology acceptance model was built on two fundamental elements that is - perceived ease of use (PEOU) and perceived usefulness (PU). Trust is linked with three dimensions which are ability, integrity and benevolence while Convenience is associated with perceived ease of use (PEOU) and perceived usefulness (PU).

According to Bhattacherjee (2002) "Ability is about customer perception of service expected service delivered, integrity is also the expectation of consumer that the

service will be fair and have reasonable conditions for making transactions while goodwill (also known as benevolence) is about the goodwill of the service provider, thus the ability to prove they have good intentions when providing the service to the customer. There are other incorporated elements of convenience which relate to trust such as Perceived Usefulness which is the ability of the service provider to provide the right service.

2.2.4 Convenience and Relative Advantage

Convenience is associated with perceived ease of use (PEOU) and perceived usefulness (PU) while relative advantage is associated with time and cost; a relationship is derived from the two variables because the two can either influence adoption positively or negatively when put together.

2.3 Empirical Analysis

Ramdhony Dineshaw and Munien Steven (2013) the researchers investigated the complex factors that prevent customers from adopting and using mobile banking services in Mauritius. The researchers used a quantitative approach, they also combined the TAM and IDT together with perceived risk and cost construct to investigate perception of m-banking in Mauritius.

The study revealed that age, gender and salary had no influence on adoption but rather, Convenience, compatibility and banking needs influenced banking adoption.
On the other hand, Perceived security risk and reliability were found to be the only obstacles to m-banking usage but also that m-banking usage is not associated with age, gender and salary.

Mohammad Rokibul Kabir (2013) the researchers investigated on the factors that influence the use of mobile banking in Bangladesh. The approach for this study was quantitative. During the course of the research a self-administrated questionnaire was given to the clients of two full-fledged mobile banking service providers of Bangladesh called Brac Bank Limited and Dutch Bangla Bank Limited. 100 questionnaires were distributed but only 64 useable questionnaires were returned giving a response rate of 64 percent. The data was analyzed using multiple regressions and the outcome of the research was that, Variables such as ability, integrity, benevolence, perceived usefulness, perceived ease of use relative cost and time advantages were found to influence the adoption of mobile banking.

Kazi and Muhammad adeel mannan (2013) Pakistan inspected those factors that affect Pakistan customers from adopting mobile banking services. Data collection was done by surveying 372 respondents from the two largest cities (Karachi and Hyderabad) of the province Sindh by use of judgment sampling method.

The researcher used a correlation research design and the analysis was done using multiple regression inorder to come up with the findings. TAM model played a big role in this research, variables such as social influence, perceived risk, perceived usefulness, and perceived ease of use to study whether they affected the adoption of mobile banking in Pakistan.

Kuisma et al. (2007) and Lian et al. (2012) the study was conducted to examine the reason for customer resistance to adoption of mobile banking, online shopping and internet banking respectively, The results of this study suggested that there is a

significant relationships between Usage Barrier and consumers' resistance to adoption.

Kazemi, S.A., et al (2013) this research investigated those factors that affect Isfahanian Mobile Banking Adoption in Iran, Based on the Decomposed Theory of Planned Behavior. The result of this study suggested that there were only two important factors which are Attitude and perceived behavioral control under which factors such as perceived usefulness, perceived ease of use ,compatibility and trust have an influence on behavioral attitude to adopt mobile banking.

Koenig et al (2010) they investigated on the barriers towards Mobile Banking System adoption among young people in Germany. This study was based on the Technology acceptance model (TAM) model. They received 155 responses from all the questionnaires that were sent, they also used a structure equation modeling (SEM) approach to tests the hypothesis. The results of the study indicated that compatibility, perceived usefulness, and risk are significant indicators for the adoption of Mobile banking systems in Germany.

Chitungo, S. K., & Munongo, S. (2013) Zimbabwe, the study was about an analysis of the factors that influence mobile banking adoption in the rural Zimbabwe through extending the technology acceptance model. The researcher adopted use of stratified random sampling and the results of the study suggested that factors such as perceived usefulness, PEOU, relative advantage, personal innovativeness and social norms influenced the intention to accept and use mobile banking.

Lian et al. (2012) they investigated the factors that influenced users intentions to adopt an online shopping, 178 valid questionnaires that were collected from college students studying in Information System related departments in Taiwan. They applied a regression analysis for the final analysis. The result of their research suggested that Information barrier had a significant negative relationship with the user's intention to adopt online shopping.

Chian – son yu (2012) Taiwan, investigation of the factors that affect individual need to adopt mobile banking through use of the UTAUT model. Factors such as social influence, perceived financial cost, performance expectancy, and perceived credibility were found to be the major influencing factors for the adoption of mobile banking.

Mohini and phadtare (2012) they conducted an investigation to study the factors that influence the adoption of mobile banking in Pune city. They used the UTAUT model in their study, the research was Exploratory and adopted the use of quantitative design, the results suggested that mobile banking in Pune city was mostly adopted by married people particularly men. Experience and interface in mobile banking was also found to be non-user friendly people thought it was inconveniencing to use it unlike other services.

Laukkanen et al. (2008) they investigated the barriers to internet banking adoption in Finland, A total of 390 questionnaires was collected from Finnish bank's customers using a postal survey method. The findings revealed that Traditional Barrier was

one of the strongest barriers to Internet banking adoption among both the opponents .

Cheah et al (2011), this was an empirical study that was conducted with the aim of investigation on the factors that affect the Malaysian consumers from adopting mobile banking services. From the study, variables such as perceived ease of use, Perceived usefulness and relative advantage were found to be positively and significantly related to the intention to adopt mobile banking services while a constructs such as perceived risk was found to be negatively correlated with the adoption of mobile banking.

2.4 Review of Relevant Theories

2.4.1 Technology Acceptance Model

Technology acceptance model is an extension of the theory of reasoned action (TRA) model which was introduced by Davis in 1986. this theory is mainly based on the idea of technology adoption, TAM replaced TRA with two technological accepted features, perceived usefulness (PU) and perceived ease of use (PEOU) which have been proven to be of significance to the adoption of technologies such as mobile banking, many researchers have used this models to analyze key issue pertaining to the acceptance and usage of mobile banking and many have yield positive results which showed a correlation between the incorporated variables such as PEOU and PU.

According to Davies(1989) Perceived usefulness is an extent to which a person

believes the use of a certain technology will benefit and improve his/her job performance while perceived ease of use refers to the level in which a person understands that the use of a new technology will be less complex for him/her.

Bong-keun jeong and tom E Yoon (2013) studied the TAM model in their study which investigated consumer acceptance of mobile banking services, by explaining relationships that exist between variables such as PEOU, PU, PC, PSE and the results indicated that perceived usefulness, perceived credibility, perceived self-efficacy and PEOU have an influence in the adoption of mobile banking but the results revealed that PU had more significance than the rest of the variables in influencing consumers to adopt mobile banking services.

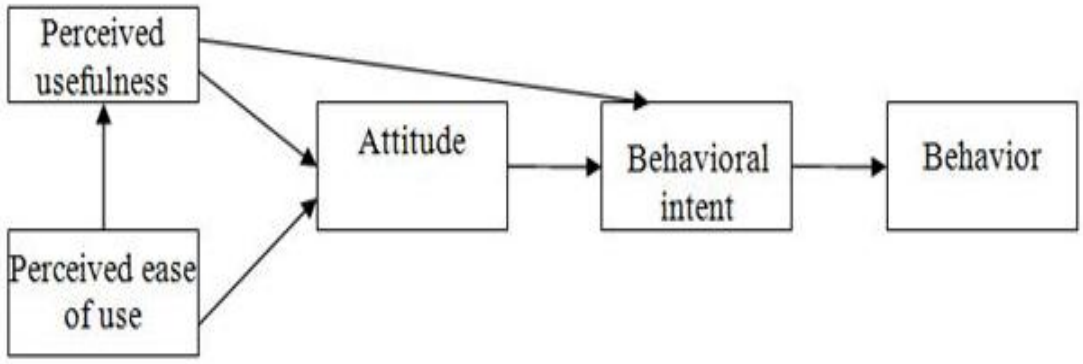

Figure 2.1: Technology Acceptance Model

Source: Davis, (1989)

Daud et al (2011) used the TAM model to analyze relationships between variables that influenced adoption of mobile banking in Malaysia. The findings of this research revealed that the model is capable of predicting intention to adopt mobile banking,

Perceived Usefulness, PC and awareness were given high priority in this study and the results proved the idea to be useful because these variables showed that they have a high effect on individual intention to use mobile banking. Other models that were used after TAM were such as the ETAM which were proven to be able to predict the intention to use new technologies. This model like many others that followed years later, was criticized many times due to its limitation in explanations, failure to acknowledge social processes of Information System development and implementation and its inability to predict outcomes as a results it was redefined several times.

According to Benbasat and Barki (2007) they criticized the model saying it did not serve the original purpose but despite the opposition many researcher still support the use of this model as an excellent model that can explain acceptance of information system, other researcher such as carter and Belanger (2005) have recommended integrating of the TAM model with other models such as IDT in order to have a more accurate and deep explanation of the variables.

The relation of the theory to this study is that, Technology Adoption Model incorporates two important constructs which are PEOU and Perceived Usefulness, these two variables have been widely explored by many researchers to study behaviors and in this study they were also applied to see if they will have the same effect.

2.4.2 Theory of Reasoned Actions

The Theory of Reasoned Action is a widely used model from social psychology

studies; it is concerned with the determinants of consciously intended behaviors. It was developed by Ajzen & Fishbein, (1975) and (1980).

The Theory of Reasoned Action is also a continuation or expansion of past theories. It is suggested by the Theory of Reasoned Action that the individual's Behavioral Intention (BI) to perform an action is determined by the individual's Attitude toward performing the Behavior (ATB) and Subjective Norm (SN). It can be seen that is has three important constructs and thus behavior intentions, attitude and subjective norm. Attitude according to this theory is about beliefs while subjective norms are about expectations. Subjective Norm (SN) is defined by Ajzen & Fishbein, (1980) As an individual perception that people who are important to them should or should not perform the behavior in question.

TRA is still widely known as a general model that does not directly state specifically the beliefs that are operative for a certain behavior, it suggest that a person's behavior is determined by the intention to do a certain action**.** The developers of this theory thus, Fishbein and Ajzen (1975) and Ajzen and Fishbein (1980) recommended using modal salient beliefs for the population obtained by taking the beliefs most frequently drawn out from a representative sample of the population.

The Theory of Reasoned Action was also successfully applied in a reasonable number of times to predict the performance of behavior and intentions. A good example is when TRA was used to predict education in a study by Fredricks & Dossett(1983).

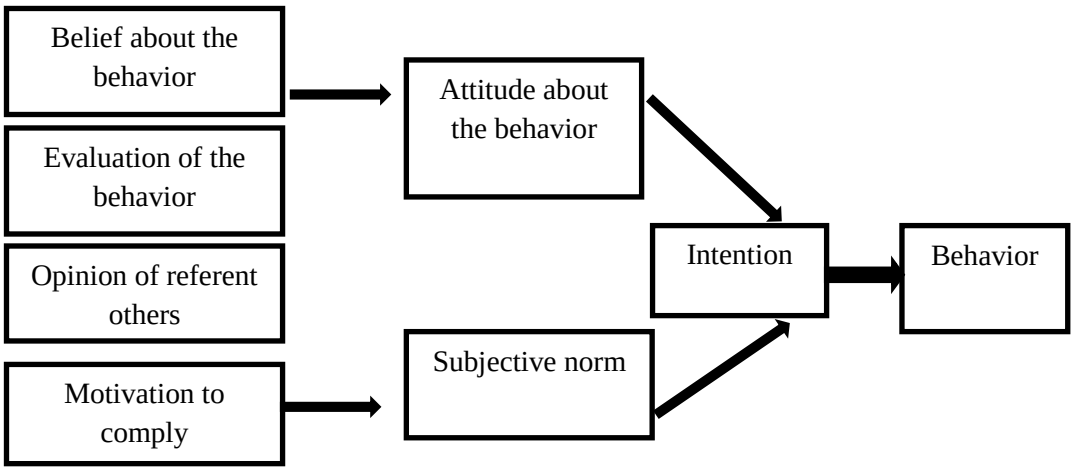

Figure 2.2: Theory of Reasoned Action Source: Fishben and Aizen (1975/1980)

2.4.3 Theory of Planned Behavior

This theory was developed by Fishbein (1975) and Ajzen (1980) it was developed as a result of failure of the TRA when it was discovered that behavior was not voluntary. According to Ajzen(1980) The theory suggest that only those specific attitudes toward the behavior in question can be expected to predict a behavior.

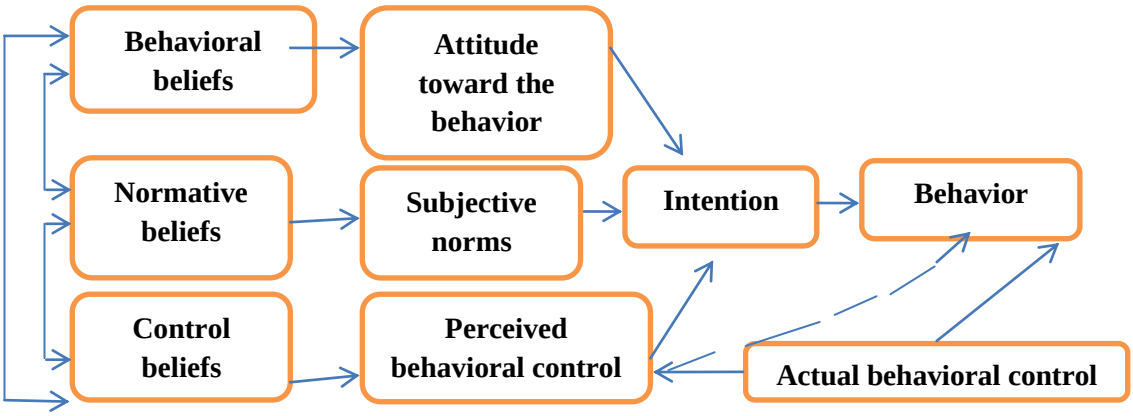

Figure 2.3: Theory of Planned Behavior

Source: Ajzen (1991)

The theory faced criticism from Sheppard et al. (1988), he argued about two important issues that made this theory problematic, that is first of all, using the theory needs to someone to differentiate behavior from intentions and secondly, there is no requirement in the theory for considering whether the chances of failing to perform is due to one's behavior or intentions. As a solution to the previous errors, Ajzen (1985) extended the Theory of Reasoned Action. He added yet another construct called perceived behavioral control (PBC), which in this case predicted jointly intentions and behavior. The extended model is what is called the theory of planned behavior (TPB).

With careful consideration, it can be seen that the two theories of TRA and TPB are similar to each other in that, in both theories Behavior intentions is an important element in predicting the actual behavior while on the other hand the main difference between these two theories is that the TPB added more constructs to the model and thus Perceived Behavioral Control (PBC) as the determinant of Behavioral Intention and control beliefs that affect the perceived behavioral control.

The reason for including the PBC is because the perceived behavior control is an external variable that has both direct and indirect effect on actual behavior intentions. The Theory of Planned Behavior was then to be successfully applied to many studies in predicting the performance of behavior and intentions. The study results of Taylor & Todd, (1995) and Venkatesh et al., (2000) provides evidence on how beneficial and correct it is to use these two theories for studying technology usage behavior.

2.4.4 Innovation Diffusion Theory

According to Rogers (1995) who is also the inventor of this theory, defines innovation as an idea, act, or instrument that is new to an individual or a group of people while Diffusion is a process in which new technology is transferred through certain channels of communication in time among individuals who are targeted to use new Information System. IDT has five innovation characteristics thus relative advantage, compatibility, complexity, and trialability and observability.

These variables may look different and unrelated to each other but in reality have everything to do with each other in the context of Information system, others have argued that TAM and IDT are only theoretically related to each other and according to Moore & Benbasat (1991) It was found that the relative advantage construct in IDT is similar to the notion of the PU in TAM, and the complexity construct in IDT captures the PEU in the technology acceptance model, although the variables sound different.

According to Medlin, (2001) and Parisot, (1995) Rogers' diffusion of innovations theory is the most appropriate theory among all theories for investigating the adoption of technologies in higher education and educational environments.

2.4.5 Decomposed Theory of Planned Behavior

The theory was developed by Taylor and Todd in 1995. According to Luarn and Lin, (2005) The two developed this theory by releasing some features of attitude, subjective norm and perceived behavioral control. Suoranta and Mattila(2004)

further revealed that decomposed theory of planned behavior, offers a comprehensive approach to understanding the factors affecting a person's decision to use technology information.

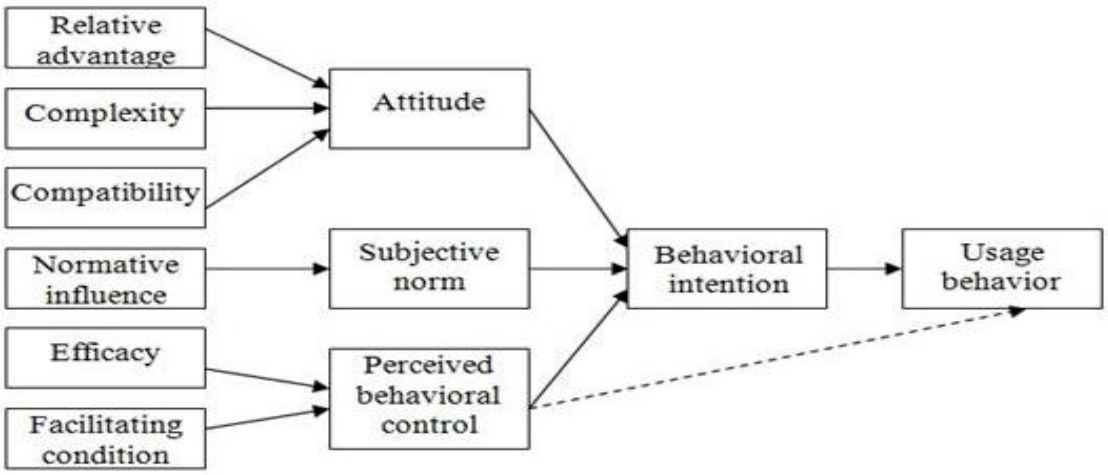

Figure 2.4: Decomposed theory of planned behavior

Source: Shih and fang, (2004)

2.4.6 Unified Theory of Acceptance and Use of Technology

Unified theory of acceptance and use of technology by Venkatesh et al (2003), This is a more complex theory which explains individual intentions to use technologies and how differences between individuals can influence the use of new technologies, it was introduced after a critical review of eight theories and models of Information system which are, TRA, TAM, TPB, CTPB and IDT.

The theory establishes that variables such as PEOU and PU can influence adoption but also varied depending on age, gender and experiences of the individuals who are introduced to a new technology. According to Venkatesh et al., (2003) The UTAUT

theory assumes that the effect of core constructs is moderated by gender, age, experience, and voluntariness of use.

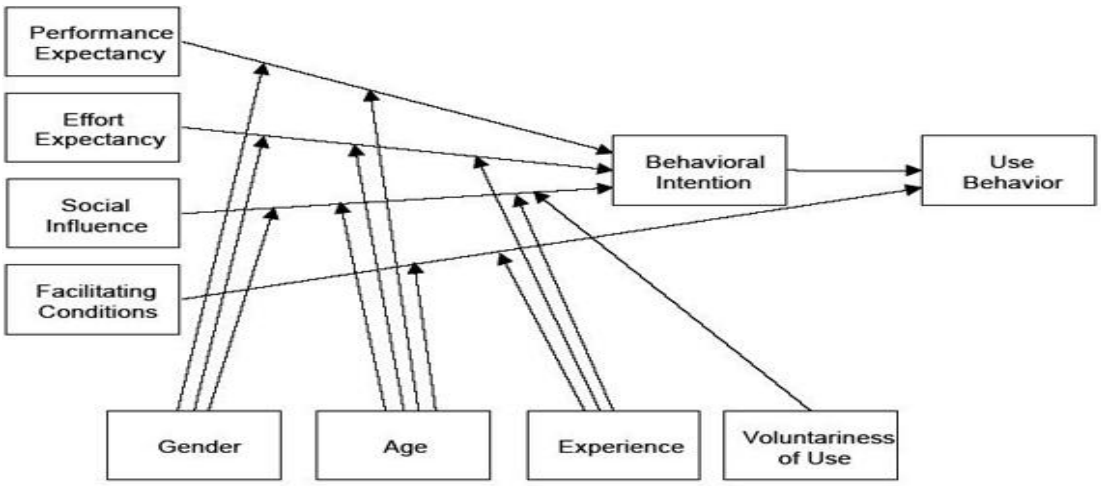

Figure 2.5: Unified theory of acceptance and use of technology

Source: Venkatesh et al (2003)

The theory attracted a lot of criticism from a number of scholars such as Van raaji and Schepers (2008) who criticized the theory by saying it lacked enough information to yield correct results hence does not guarantee to give correct information in the results of any study,

Bagozzi (2007) also criticized this theory, he insisted “the theory was clear in its targets but it had too many variables which made it complex and confusing enough to cause chaos for the researcher and reader”, This is evident from the number of variables and contributing variables of this theory, the theory is indeed complex and if not carefully noted it can cause a lot of confusion for the reader and researcher.

2.5 Conceptual Framework

Based on the surveyed literature the following was the conceptual framework for this study:

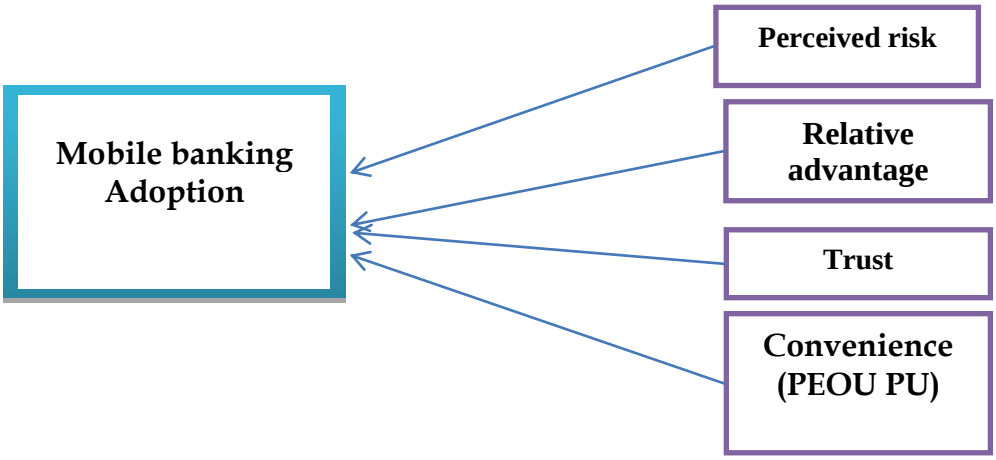

Figure 2.6: Conceptual Frameworks

Source: Author

Based on the existing theories of adoption and acceptance of new technology, the researcher proposed the model above in figure 2.6 which indicates the four independent variables that were used in the research and the dependent variable. The four variables were perceived risk, relative advantage, trust and convenience. Each variable has its own building factors such, convenience had building factors such as perceived ease of use and perceived usefulness, relative advantage had two building factors, cost and time, while trust had three building factors thus, goodwill, integrity and ability.

2.6 Research Gap

There have been a number of valuable studies in the area of mobile banking since years back in North America, Europe, Asia and some from African countries such as

Kenya, Ghana, Nigeria and Zimbabwe. Researcher's such as Al- Fahim, N. H. (2012) presented evidence for a number of variables that influenced consumer behavior intention to use mobile banking, however the study of mobile banking has been given little attention in the literature in Tanzania, this study was meant to shed light on issues that influence adoption of mobile banking services in order to create an understanding of this new technology in the banking sector in Tanzania.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Research Design

This is a causal research which used a quantitative method because the research was based on different measurements scales, the aim was to investigate the factors influencing customer adoption of mobile banking services in Tanzania. According to Saunders, Lewis, and Thornhill (2009) a quantitative model is used to generate data in a numerical form in order to test a general theory. The first step after building the questionnaire was to run the pilot test for checking the efficiency so as to explore the relevant and irrelevant items in the questionnaire and the second step was to conduct the survey.

According to Saunders et al (2009) conducting a survey is more suitable for the study as it is the most preferred form of data collection and can generate large amount of data in an economical way. In this case, to obtain the required data, a self-administered questionnaire was distributed to the respondents, who are users or future users of mobile banking services in Tanzania.

3.2 Research Area and Population

3.2.1 Population

According to Saunders (2007) Population refers to full set of groups from which a sample is taken. The target population for this study was individuals residing in Dar es Salaam. A convenience sampling technique was be used in order to obtain data

from respondents. Questionnaires were distributed to 150 participants. The reason for choosing this sample population was that these individuals are people who engage in retail banking and could very well be among the potential customers of mobile banking services now or in the near future.

3.3 Sampling

3.3.1 Sampling Size

150 questionnaires were distributed; the reason for this is because it is impractical to assess each and every individual in a population. According to Struwig & Stead (2001)" if a sample process has been correctly followed then the sample size of 150-200 can be considered acceptable and reflect the whole population". This validates the choice of sampling size, to add more to that according to Hair and Anderson (1998), a general rule, the sample size should be 100 or greater. Thus for the case where there is use of a multiple regression analysis.

3.3.2 Sampling Technique

According to Saunders et al., (2009) Sampling cannot be avoided in a research because it is impracticable to survey the entire targeted population due to budget and time constraints. This study used a non-probability sampling methods. According to Saunders et al (2000) non-probability sampling methods provide a range of alternatives in terms of techniques that can be used by the researcher.

Hair et al (2003) Suggested that, convenience sampling can help the researcher to complete large tasks in a short amount of time and cost effectively but suffer from

bias due to the differences that exist in the target population. The sampling technique used in this study was convenience sampling.

3.4 Data Collection Technique

3.4.1 Primary Data

The primary data was collected using a questionnaire. in order to collect primary data a self-administered questionnaire was distributed to respondents.

3.4.2 Secondary Data

Secondary data is past data collected for a different purpose, it is very helpful in literature review to clarify gaps existing in the available literature. According to Vartanian (2011), secondary data refers to the data that is meant to bring results or answers to the pending questions of the researcher other than the actual questions.

When using primary data you make original analysis but for the case of Secondary data the user of information from individuals or groups who have written and published journals or books is not involved in the making and collection of data but rather make use of the information to broaden knowledge on the topic. Therefore, the secondary data for this research largely constitute of information from several information system models and theories developed by a number of authors such as TRA by Fishbein & Ajzen (1975) and TAM by Davis (1989).

3.5 Data Analysis

Based on the nature of the study, it was necessary to analyze data using Quantitative research design through use of multiple regression analysis to study relationships,

Collect data and run statistical test using SPSS software and record results.

Basically, multiple regressions have four assumptions, linearity, normality, homoscedasticity of variance and independence of error terms (Sapp, 2006). Linearity is the linear relationship between predictors variables, while homoscedasticity is a condition whereby the variation in the value of y remains constant all the way as suggested by Salkind (2010)

In order to study the relationships between the independent and dependent variables a multiple regression analysis was used. The multiple regression model for the study was as follows:

$$\mathbf{Y = a + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4}$$

Where: Y: Mobile banking Adoption

Y = the dependent variable

X1: Perceived risk,

X2: Relative advantage,

X3: Trust,

X4: Convenience

X= Independent variables

a= constant

β= is the coefficient on the First, second, third and fourth predictor variable

3.6 Reliability and Viability

3.6.1 Reliability

Reliability refers to a degree to which measurements used can yield suitable results because they are free from errors. According to Hair, Black, Babin, & Anderson,

(2006) reliability is the assessment of the degree of consistency between multiple measurements of a variable.

This study used the Cronbach's alpha to assess the reliability of the variables. According to Field (2009) and Tan & Teo, (2000), Cronbach's alphas of the sub-scales ranged from 0.690 to 0.925 which indicate an acceptable internal consistency and reliability measures for the questionnaire meaning that if the results exceed the minimum alpha of 0.690 the constructs measures were be deemed reliable.

3.6.2 Validity

Validity is about having some level of similarity in the original idea of research and the actual idea after getting the results. According to Saunders et al (2000) the concept of validity measures whether the findings in the research are really about what they appear to be about and check the relationship between variables, A pilot test was used to ensure validity, a pre-test was sent to five respondents to see if the questionnaire contains anything that was hard to interpret.

3.7 Instrumentation Development and Measurement Scales

The data analysis of this study made use of multiple regression analysis. In respect of the measurements of the study, the present study made use of previous studies' inventories of questionnaire items.

The measurements and scales was a five point likert scale (1 = Strongly Disagree and 5 = Strongly Agree) as validated from previous researchers such as Davis et al(1989), Ajzen (1991), Fishbein & Ajzen (1975) and Triandis (1977).

3.7.1 Measures of Perceived Risk

Perceived risk is a breaking point at which a customer chooses to assume risk or not, according to Lee (2009) he defined perceived risk as one of the five facets of risk which include performance risk, Security or privacy risk, time risk, social risk and financial risk.

Previous studies have shown that perceived risk is vital in adoption of any new technology and in many cases factors such as performance risk, security/privacy risk, time risk, social risk and financial risk are found to be negatively related with adoption of Mobile Banking services because perceived risk create grounds for doubts and confusion in the customers mind especially because they are not sure about their security while using mobile banking. Perceived risk was measured using 5 variables on a five point likert scale.

Table 3.1: Scale of Perceived Risk

Security, psychological and privacy(1-Strongly disagree,2=Disagree,3=undecided,4=Agree,5=Strongly agree)		
Construct	Coding of variables	items
Perceived risk	PR01	Security concerns
	PR02	Risk using Mb
	PR03	Fear of misuse of personal information
	PR04	Fear of loss of money
	PR05	Fear of unauthorized access

Source: Survey Data, 2014

3.7.2 Measures of Relative Advantage

Relative advantage is the level to which a service or product is beneficial to the customer in terms of cost and time.The element of cost and time affects customers in many ways can influence a customer to make a decision to adopt a new technology. Researchers such as Cruz et al., (2010) and Laukkanen, (2007) in their studies have clarified that relative advantage has a significant positive contribution to the adoption of mobile banking technology.

Table 3.2: Scale of Relative Advantage

Time and cost (1-Strongly disagree,2=Disagree,3=undecided,4=Agree,5=Strongly agree)		
Construct	Coding of variables	items
Relative advantage	RA06	Quick task accomplishment
	RA07	Anytime and anywhere access
	RA08	Cheap mobile services transaction
	RA09	Expensive payment system

Source: Survey Data, 2014

3.7.2 Measures of Trust

Table 3.3: Scale of Trust

Ability, integrity and benevolence (1-Strongly disagree,2=Disagree,3=undecided,4=Agree,5=Strongly agree)		
Construct	Coding of variables	Items
Trust	T10	Banks are trustworthy
	T11	Ability influence use
	T12	Service provider is effective
	T13	Integrity
	T14	Goodwill

Source: Survey Data, 2014

3.7.3 Measures of Convenience

Two useful factors under convenience are, Perceived usefulness and perceived ease of use these two factors are the most important factors in determining adoption of a new technology. Their contribution toward adoption of new technology cannot be ignored, each time a customer decides to use a service the element of usefulness of service and ease of use pops up and this is what makes these two very important in influencing adoption. Normally a customer will ensure that the service does not take a lot of their time learning and that it is useful for their needs.

Three variables with a five-point Likert scales from Davis et al (1989) were used to measure customer's intention to adopt mobile banking**.**

Table 3.4: Scale of Convenience

Perceived ease of use and perceived usefulness (1-Strongly disagree,2=Disagree,3=undecided,4=Agree,5=Strongly agree)		
Construct	Coding of variables	Items
Convenience	C15	Complexity make it hard to learn
	C16	Few menu options
	C17	Convenient and easy to use

Source: Survey Data, 2014

3.7.5 Data Coding Table

The table shows the codes for each question in the study for both sections of the questionnaire.

Table 3.5: Measurements for all Variables

	Variable Codes and labels		Measurement	Scale of measurement (Codes and Value)
Demographic	Q1	Gender	Nominal	1=Female 2=Male
	Q2	Age	Ratio/ordinal	1=(18-23) 2=(24-28) 3=(29-34) 4=(35-onwards)
	Q3	Education level	Ordinal	0=(No formal education) 1=(primary) 2=(secondary)3=(technical and vocational) 4=(university)
	Q4	Subscription to MB	Nominal	0=No 1=Yes
	Q5	User of Mb	Nominal	0=No 1=Yes
	Q6	Years of Transaction	Ordinal	1=(1 year) 2=(2 years) 3=(more than 2 years
	Q7	Use of MB	Nominal	0=TF 1=CAB 2=PB 3=CW
	Q8	MB Number of use	Nominal	0=Daily, 1=Once a week, 2=once a month, 3= many times a month
Dependent variable		Adoption of MB	Ordinal	5 point likert scale
Independent variables		PR,RA,T,C	Ordinal	5 point likert scale

Source: Survey Data, 2014

3.7.4 Cronbach's Alpha Reliability Analysis

3.7.4.1 Reliability

To ensure the reliability of the measurement scales, Cronbach's alpha was used in the calculation. Where by a higher value of above 0.6 indicated that the variables were reliable while the values above 0.9 are regarded as most reliable but anything below 0.6 was regarded inconsistent with the reliability scales as according to George & Mallery, (2003) who suggested that in order for a scale to be reliable, the Cronbach's alpha value should be above 0.6.

Table 3. 6: Cronbach's Alpha Coefficients for The Pilot Test

Variables	Cronbach's Alpha	No. of Items
Perceived risk	.625	5
Relative advantage	.619	4
Trust	.602	5
Convenience	.816	3

Source: Survey Data, 2014

Table 3.6 above shows the reliability test for the dependent variables X1, X2, X3, X4 which are Perceived risk, relative advantage, trust and convenience. The Reliability Test for perceived risk consisted of five questions and the result is 0.625 representing a 62.5%. This result is considered Moderate according to the Alpha Coefficient Range and thus the researcher concludes that the questions regarding perceived risk are acceptable.

The Reliability Test for relative advantage consisted of four questions and the result is 0.619 representing a 61.9%. This result is considered Moderate according to the Alpha Coefficient Range and thus the researcher concludes that the questions regarding relative advantage are acceptable. The Reliability Test for trust consisted of five questions and the result is 0.602 representing a 60.2%. This result is considered Moderate according to the Alpha Coefficient Range and thus the researcher concludes that the questions regarding perceived trust are acceptable.

The Reliability Test for convenience consisted of three questions and the result is 0.816 representing a 81.6%. This result is considered good according to the Alpha

Coefficient Range and thus the researcher concludes that the questions regarding convenience are acceptable.

CHAPTER FOUR

4.0 DATA ANALYSIS AND DISCUSSION OF THE FINDINGS

4.1 Demographic Characteristics of the Participants

A total of 150 questionnaires were given to the respondents, 105 responses were received but only 95 questionnaires were useable for analysis yielding a 62.7% response rate. Most of the respondents were customers in major Tanzanian banks. The study concentrated on users of mobile banking to analyze the factors that influence the use of mobile banking among these customers. To draw the demographic profile of the respondents, the study used frequencies to determine the number of times a respondent answered a particular question.

4.1.1 Respondents Gender

From figure 4.1 below, the sample consisted of 95 participants, from the participants who completed the gender information 64 were men which comprised of 67% of the study participants and the number female participants accounted for only 31 participants which comprised of only 33% of the total number of participants in this study. This means that both male and females were represented in the sample for this study but men were the majority.

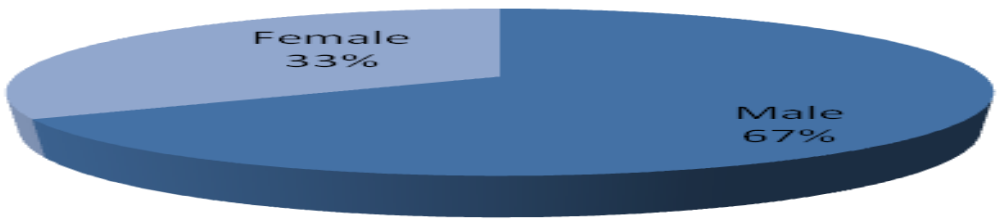

Figure 4.1: Respondents Gender

Source: Survey Data, 2014

4.1.2 Respondents Age

In the figure 4.2 below, the responses indicate that People from age 29-34 were the majority respondents for this study yielding a response rate of 54.7% while respondents from age 24-34 were 22.1% with a difference of 3.2% from the ages ranging 34- onwards which had 18.9% response rate meanwhile the lowest number of respondents came from age group between 18-23 which had only 4.2%.

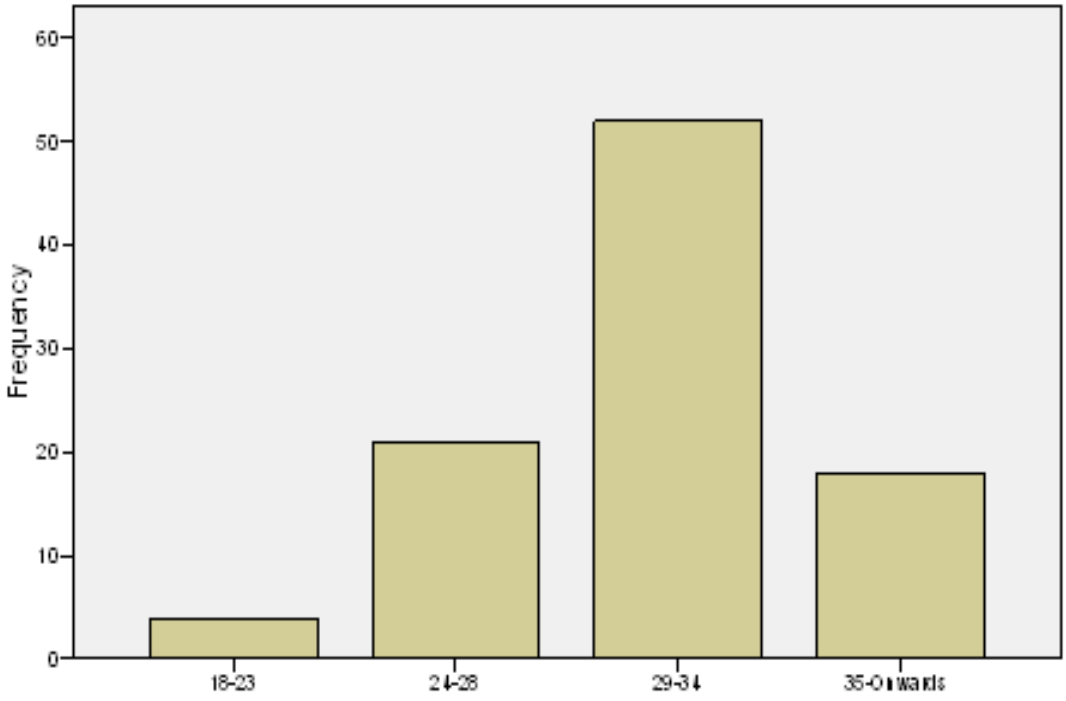

Figure 4.2: Respondents Age

Source: Survey data, 2014

4.1.3 Respondents Education

From figure 4.3 below, there were 95 participants, many respondents had University level education which comprised of a 58% response rate while fewer respondents fell in the No formal education Category with 25%. Meanwhile 4.2% were participants

with primary education, 12.6% was for those participants with secondary education and 23.2% was for participants with tertiary education.

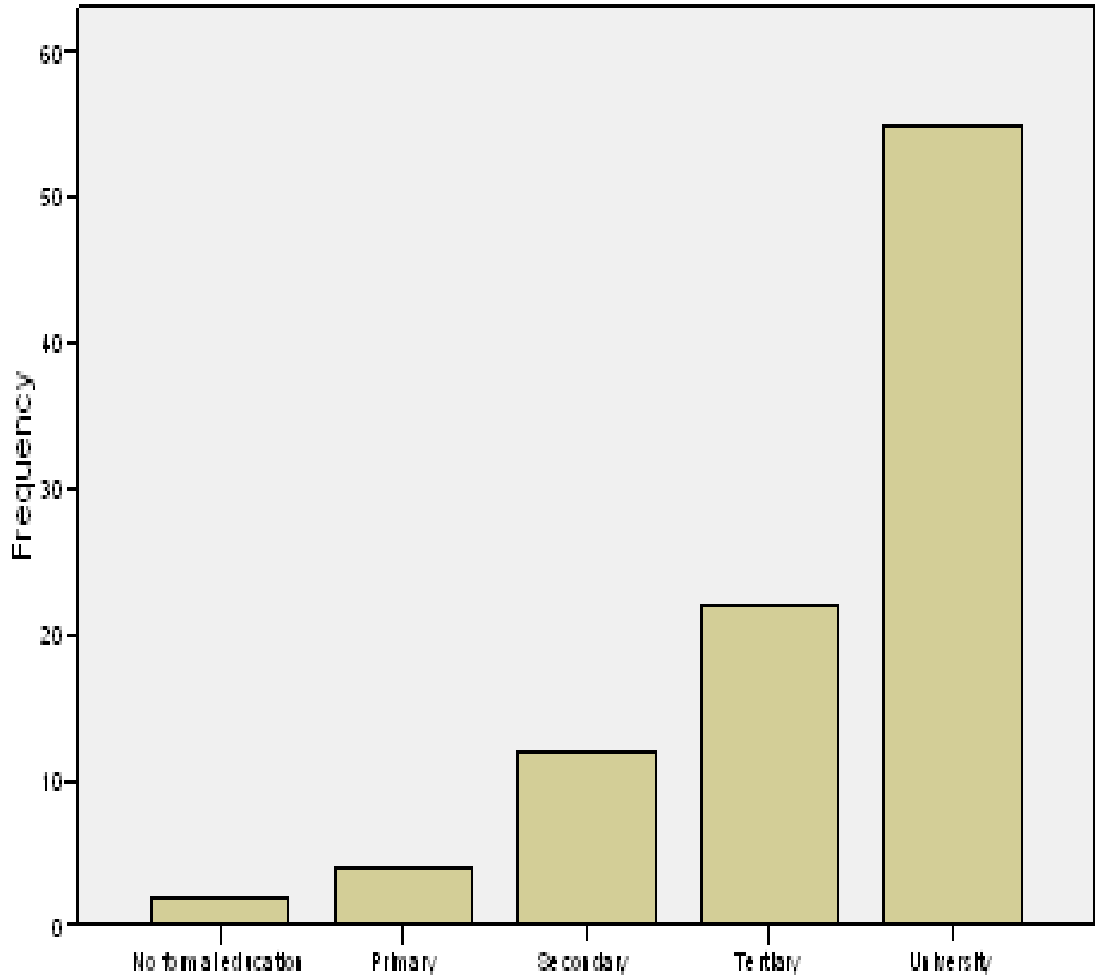

Figure 4.3: Respondents Level of Education

Source: Survey Data (2014)

4.1.4 Respondents Subscription to Mobile Banking Services

From figure 4.4 below, the difference is slightly lower between subscribers and non-subscribers, whereas 58% of the respondents in this study were subscribed to mobile banking services while 42% of the respondents answered No meaning they were not yet subscribed but would if they get necessary information.

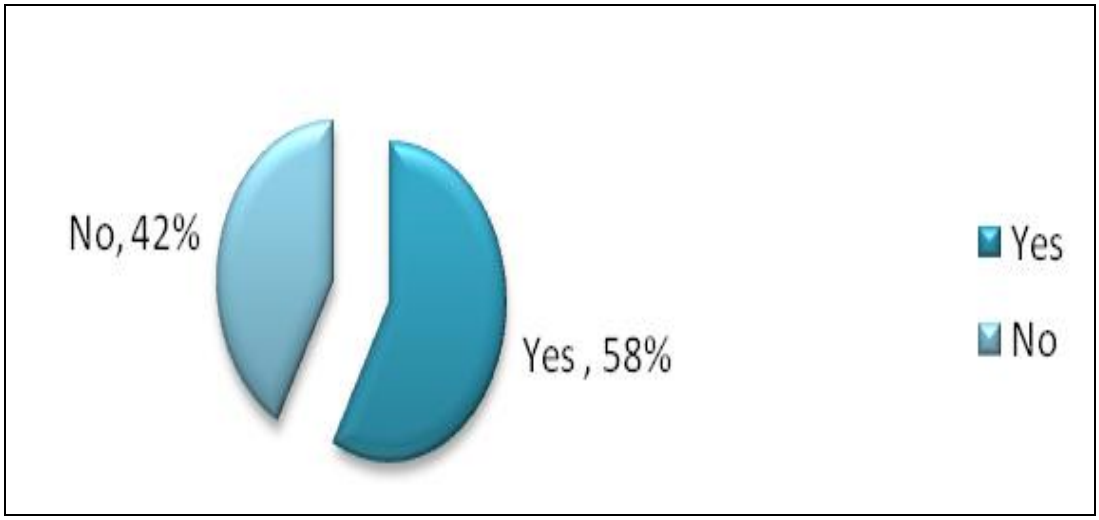

Figure 4.4: Respondents Subscription

Source: Survey Data (2014)

4.1.5 Respondents that Actively Use Mobile Banking Services

As shown below in figure 4.5, the number of active users of mobile banking is higher than the inactive users, 55% use mobile banking services every now and then while 45% were not actively using mobile banking services.

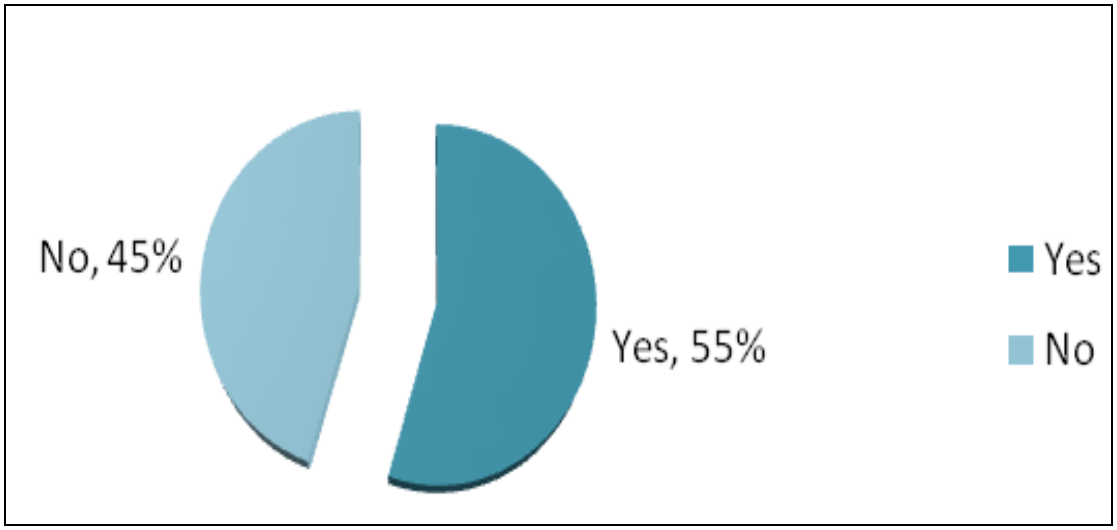

Figure 4.5: Respondents, Who Are Users of M-Banking

Source : Survey Data (2014)

4.1.6 Respondents Years of Use Of Service

In figure 4.6 below, 43.2% of the users of mobile banking have accessed and used the service for a period of one year, 33.7% have accessed the service for 2 years while 23.2 % have used the service for a period of 2 years and more. The interpretation of this result is that, many respondents are aware of the mobile banking technology and that the majority have accepted the new technology as seen above, there has been an increase in adoption from 23.2% to 43.2% which is a significant increase for adoption of mobile banking.

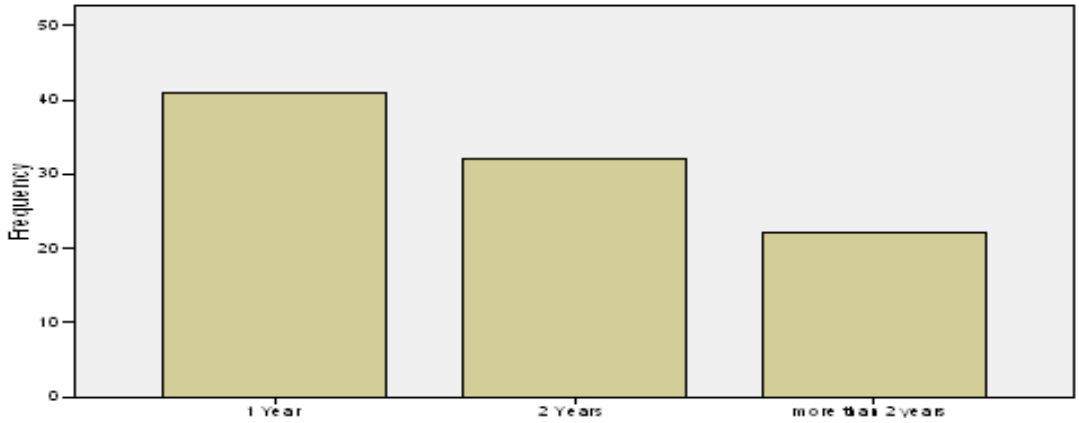

Figure 4.6: Respondents Years of Use

Source: Survey Data (2014)

4.1.7 Respondents use for Mobile Banking Services

In the figure 4.7 below, the total number of participants was 95, the figure shows that majority of the users of mobile banking use if for transferring funds which in this case had a 36% response rate as compared to cash withdrawal which has only a 20% response, meanwhile other methods such as paying bills had a 24% response rate. Meaning, many respondents used the mobile banking service mostly to transfer funds and pay bills.

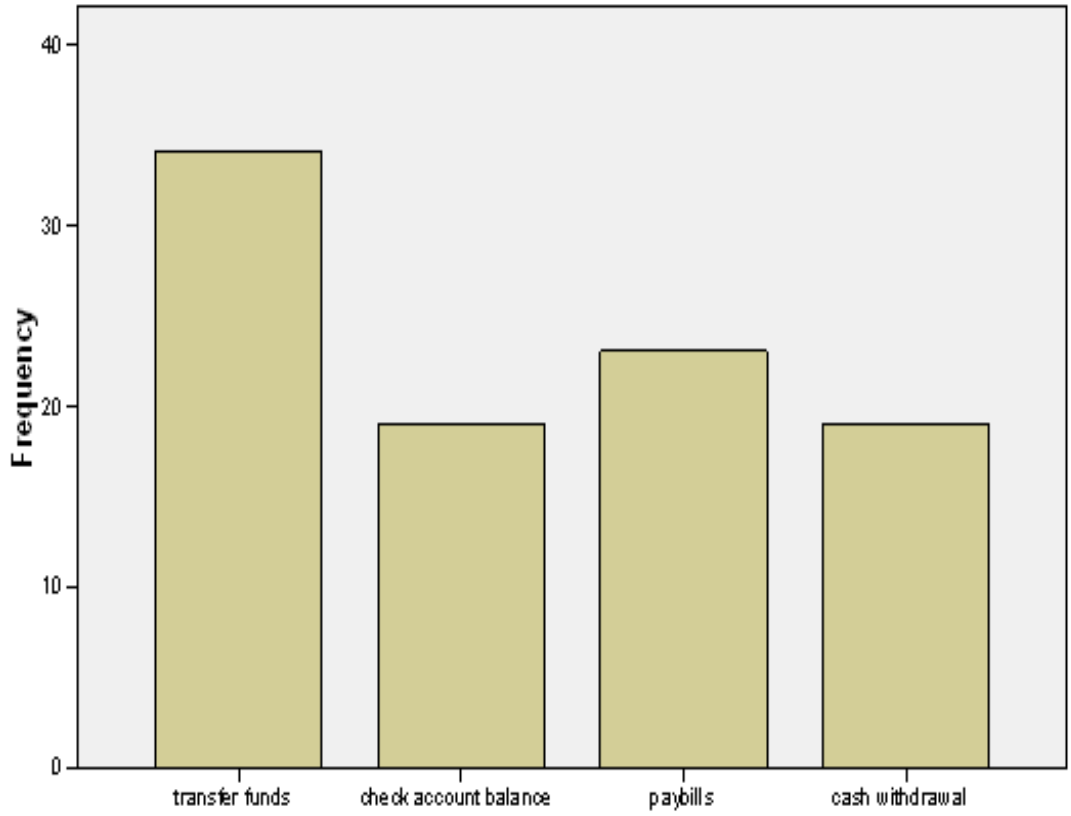

Figure 4.7: Respondents Uses for M-Banking

Source: Survey Data (2014)

4.1.8 Respondents frequency in using m-banking services

In figure 4.8 below, Regarding the number of times a customer would use mobile banking services, from the total of 95 respondents the results show that, most of the respondents used mobile banking at least once a week having a 37.9% response rate, while having a slight difference with other respondents who preferred using mobile banking only once a month with a 24.2% response rate. The number of participants who would use mobile banking services daily yields a 1.1% response rate while the number of those who use mobile banking many times in a month was 36.8% of all the participants.

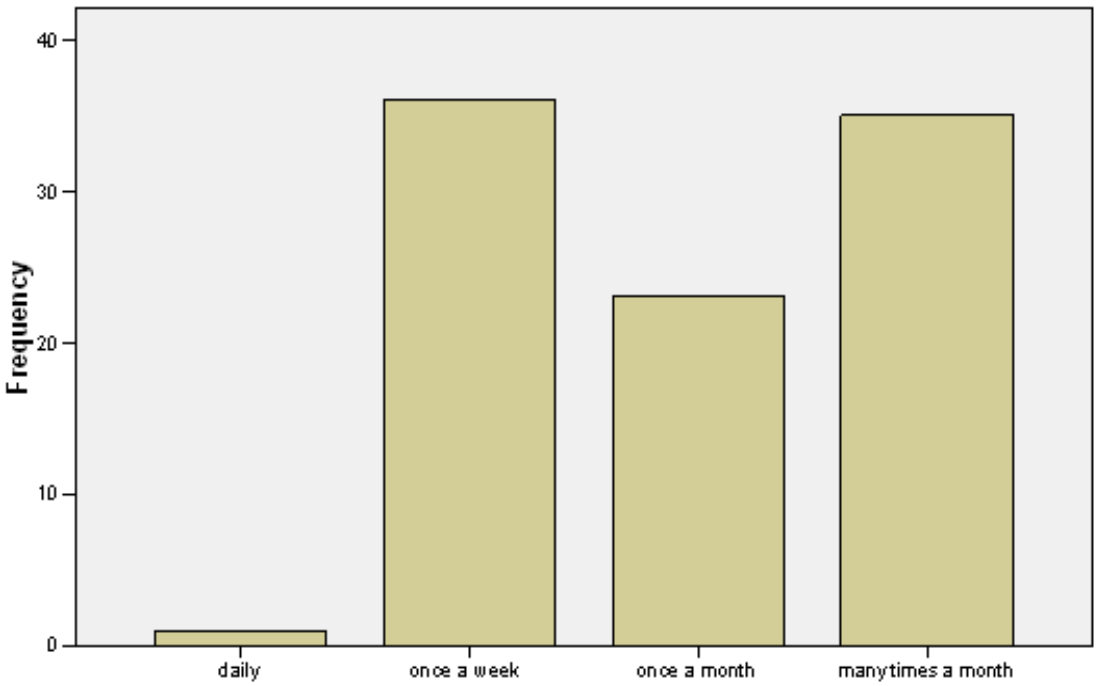

Figure 4.8: Respondents Number of Times of Use

Source: Survey data (2014)

4.2 Multiple regressions analysis

The objective of this study was to identify the factors that influence adoption of mobile banking in Tanzania. In order to study the relationship between the dependent and independent variables and specify the best predictors of the dependent variable (mobile banking adoption) a multiple Regression model was applied.

Multiple regression was used for testing the model and hypotheses. It provides information regarding the significance of the variables that were included in the model while the R^2 explains how much variance in the dependent variable is explained by the model. Statements of hypothesis were formulated based on the four variables used in this study in order to come up with the results.

4.2.1 Perceived risk

H1: *perceived risk will have a negative effect in influencing mobile banking adoption*

Perceived risk was the first independent variable to be used to analyze the relationship with adoption of mobile banking. The Respondents were asked to express the extent to which they agree or disagree with statements relating to perceived risk thus security, and privacy risk. The hypothesis statement (H1) was tested using multiple regression and results are presented in Table 4.1.

Table 4.1: Perceived risk Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	3.027	.961		3.152	.002
	PR01	-.049	.092	-.051	-.528	.599
	PR02	.218	.061	.345	3.581	.001
	PR03	.159	.067	.227	2.375	.020
	PR04	.111	.104	.103	1.058	.293
	PR05	-.087	.117	-.071	-.742	.460

Source: Survey Data (2014)

The results in table 4.1 above show the results for perceived risk and mobile banking adoption. The results indicate that, PR02 (B=.218), PR03 (B=.159), PR04 (B=.111) while on the other hand for the ones with negative coefficients, PR01 (B=-.049) and PR05 (B=-0.87). From this table, PR02, PR03 and PR04 have a positive correlation with mobile banking adoption which suggests that there is a high chance that perceived risk will influence mobile banking adoption.

However, the negative coefficients show that there is an inverse relationship with mobile banking adoption, meaning that with PR01, respondents had high concerns

for security of their accounts which would leave a lower chance of adopting mobile banking. The same applies to PR05 which also had a negative coefficient with mobile banking adoption, for PR05, it means respondents feared that if they were to use mobile banking services someone else might have access to their bank accounts. From this result, H1 was not supported, because perceived risk had a positive effect in influencing mobile banking adoption. The result of this study is in conformity with the study by Brown et al. (2003) who in their study found perceived risk to be a significant factor affecting mobile banking adoption.

However there are other studies that do not support the outcome of this study such as the study by Lu, Yang, Chau & Cao (2011),where they did a study on trust transfer process and intention to use mobile payment services in china, the results indicated that perceived risk negatively affected the acceptance of mobile payment. Another study by Luo, Li, Zhang and Shim, (2010) they did a similar investigation where they collected 122 questionnaires from undergraduate students at an Eastern U.S. university, the results of their study indicated that Perceived risk had significant negative effect on behavioral intention of potential users' behavioral intention towards mobile banking services adoption.

4.2.2 Relative advantage

The Respondents were asked to express the extent to which they agree or disagree with statements relating to relative advantage this included time and cost. The hypothesis statement (H2) was tested using multiple regression and results are presented in Table 4.2.

H2: *Relative advantage will have a positive effect in influencing mobile banking adoption*

Table 4.2: Relative advantage Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	2.772	.328		8.461	.000
	RA06	.063	.054	.099	1.167	.246
	RA07	.201	.121	.324	1.659	.101
	RA08	-.269	.115	-.425	-2.341	.021
	RA09	.430	.080	.623	5.374	.000

Source: Survey Data (2014)

For the issue of cost and time, three of the variables had a significance effect in influencing adoption of mobile banking services, thus RA06 (B=.063), RA07 (B=.201) and RA09 (B=.430) on the other hand only one variable, RA08(-.269) had a negative coefficient. This means that for those which came out with a positive coefficient there is a high chance that relative advantage will influence mobile banking adoption.

This result supports hypothesis H2 and is further confirmed by a study conducted by shallone et al (2013) who studied mobile banking adoption in rural Zimbabwe (extension of Technology Acceptance Model), the findings revealed that relative advantage influenced adoption and use of mobile banking services. The results of this study is also further confirmed by the findings of other studies by Cruz et al., (2010) Laukkanen, (2007) Tan and Teo (2000) Holak and Lehmann (1990)

Tornatzky and Klein (1982) whereby perceived relative advantage had a significant positive influence on the adoption of new technology.

4.2.3 Trust

The Respondents were asked to express the extent to which they agree or disagree with statements relating to trust thus ability, integrity and kindness. The hypothesis statement (H3) was tested using multiple regression and results are presented in Table 4.3.

H3: *Trust will have a positive effect in influencing mobile banking adoption*

Table 4.3: Trust Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	5.424	.946		5.732	.000
	T10	-.025	.136	-.018	-.183	.855
	T11	-.017	.124	-.014	-.138	.890
	T12	-.221	.062	-.417	-3.561	.001
	T13	.130	.065	.232	1.989	.050
	T14	-.124	.058	-.227	-2.129	.036

Source: Survey Data (2014)

From the coefficients table 4.3 above, T10 (B= -.025) has a negative regression coefficient which indicates an inverse relationship. The same apply to the other

statements, T11 (B= -.017), T12 (B= -.221), and T14 (B= -.124) except T13 (B=.130) which has a positive coefficient. As a result H4 is not supported in this study, because the result shows that trust has a negative effect in influencing mobile banking adoption.

This outcome validated the study results by Bakhshali ,F., (2010) In the study of the factors influencing the adoption and use of electronic banking in Arak city, the results indicated that trust has a negative effect on mobile banking adoption.

4.2.4 Convenience

The Respondents were asked to express the extent to which they agree or disagree with statements relating to convenience thus perceived ease of use (PEOU) and perceived usefulness (PU). The hypothesis statement (H) was tested using multiple regression and results are presented in Table 4.4

H4: *Convenience will have a positive effect in influencing mobile banking adoption*

Table 4.4: Convenience Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	2.077	.403		5.151	.000
	C15	.073	.051	.122	1.438	.177
	C16	.208	.050	.330	4.178	.000
	C17	.340	.057	.517	5.973	.000

Source: Survey Data (2014)

The table 4.4 above shows the regression results for convenience(PEOU and PU) and mobile banking, C15 (B=.073) C16(B=.208) C17(B=.340) all of these variables have a positive coefficient which suggest that convenience will influence mobile banking adoption, meaning that the results in this table confirm that convenience is the key determinant in mobile banking adoption. A large number of previous researches' have provided support for the convenience variable suggesting that convenience has a significant effect in adoption of mobile banking.

The results of this study are compatible with the study by Davies (1989) Cruz et al (2010), Laukkanen (2007) and Cheah et. al, (2011) respectively in their research, perceived ease of use and perceived usefulness was found to be positively related with the adoption of mobile banking services. Another study by Eastin (2002) also found that perceived convenience was the strongest predictor.

4.2.5 Relationship between Variables

Table 4.5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.796(a)	.633	.546	.616

Source: Survey Data (2014)

Table 4.5, shows three important elements, thus R, R^2 and the adjusted R^2. From this table, R shows a significant positive relationship of 0.796 which is 79.6%. The R^2 value =0.633 meaning 63.3% of the variance in the model can be predicted using the independent variables or in simple words 63.3% of mobile banking is explained by the independent variables.

Table 4.6: ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	47.039	17	2.767	7.302	.000(a)
	Residual	27.283	72	.379		
	Total	74.322	89			

a Predictors: (Constant), C17, RA09, PR05, T14, T11, PR01, T10, PR04, PR02, C16, T13, PR03, C15, RA08, T12, RA06, RA07

b Dependent Variable: Mba.

Table 4.7: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	2.077	.403		5.151	.000
	X1	.072	.050	.112	1.428	.157
	X2	.208	.050	.330	4.178	.000
	X3	-.079	.042	-.145	-1.870	.065
	X4	.386	.054	.558	7.166	.000

Source: Survey Data (2014)

Table 4.7 shows the statistically significant relationships between the four independent variables (Perceived risk, relative advantage, trust and convenience) .

The beta values of the three independent variables (perceived risk, convenience and relative advantage) which were more significant, convenience having the highest beta value of (beta= 0.558) while relative advantage had (beta = 0.330) and perceived risk (beta=0.112) meaning that convenience was the most significant in influencing the adoption of mobile banking compared to the other independent variables although surprisingly, the study did not show any statistically significant

relationship between trust and mobile banking adoption where X3 had (B= -.145) meaning that trust had little or no contribution to the model in this particular study.

The findings in this study support previous studies by Teo 2001; Venkatesh & Davis 2000; Davis 1989, Ramdhony dineshaw and Munien steven (2013) where there study results suggest that convenience (perceived usefulness and perceived ease of use) is the strongest determinant of adoption of new technology.

Multiple regression model result

$$Y = a + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4$$

Mobile Banking adoption = 2.077 + 0.072X1+ 0.208X2 - 0.079 X3+ 0.386X4

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The findings revealed that, mobile banking was largely influenced by three important variables thus, relative advantage, perceived risk and convenience as explained below. The research Hypothesis and objectives were based on studies by previous researchers that have been conducted by as Cruz et al (2010) and Davies (1989).

5.1.1 Perceived risk

The results of this study indicate that majority of the customers believe that it is safe to use mobile banking services although there are a few others that still disagree because they feel they will be exposing personal information which may be misused if it falls in the wrong hands or disappears as the customer tries to use the service.

From Hypothesis H1, perceived risk was found to have a significant positive influence on mobile banking adoption meaning H1 was not supported, respondents perceived a lower risk when using mobile banking services which did not discourage them from adopting mobile banking services, however it's important for service providers to ensure security for their customers in order to remove the uncertainty among people.

The finding was in line with other previous studies by, Koenig-Lewis et al. (2010) they investigated the factors that influence Mobile money adoption in Germany

using Technology Acceptance Model , The findings of the study indicated that perceived risk is a significant indicator for the adoption of Mobile money services in Germany.

On the other hand, there are other studies that did not come up with similar findings are such as the study by Brown et al. (2003) they investigated the predictors of Mobile money adoption in South Africa, Variables that were identified included perceived risk and consumer banking needs but the findings revealed that perceived risk had a major negative influence in adoption of mobile banking services in south Africa.

5.1.2 Relative advantage

Based on the results of this study, users of mobile banking perceived mobile banking to be making a positive contribution in their lives in terms of cost and time. In this case, hypothesis H2, relative advantage was found to have a significant positive influence on mobile banking adoption of mobile banking services in Tanzania.

The finding was consistent with past studies by Cruz et al., (2010) and Laukkanen, (2007). The findings revealed relative advantage had a significant positive influence on adoption. This result indicate that, if mobile banking service providers paid attention to the element of cost and time consumers will most likely be willing to adopt the service because customers pay attention to issues of time and cost meaning

that the greater the relative advantage of using the service the more likely the customer will be willing to adopt mobile banking services.

5.1.3 Trust

According to the results of this study, mobile banking users had the perception that adopting a new technology such as mobile banking is not in any way associated with having trust in the service or the service provider, this can be seen in the results.

Hypothesis H3, Trust was found to have significant negative influence on mobile banking adoption. This finding did not support H3. Meaning that, the issues of integrity, ability and goodwill are things that service providers need to revise so that they can create a positive image in the eyes of their customers.

The finding was also consistent with the results by other researchers studies by Al-Jabri and Sohail, (2012), Tan and Teo (2000Luo et al (2010) and Gu et al (2009).

5.1.4 Convenience

Based on the results of this study, customers perceived mobile banking to be useful and easy to use unlike any other service. This result indicate that factors such as perceived ease of use and perceived usefulness are the most important motivating factors in influencing adoption of mobile banking services in Tanzania.

Hypothesis H4, convenience was found to have a significant positive influence on mobile banking adoption hence Hypothesis H4 was supported in this study.

5.2 Conclusion

The study provides an understanding of the factors that influence mobile banking adoption in Tanzania by incorporating four constructs, thus perceived risk, relative advantage (time and cost), trust and convenience (PEOU and PU) .

Multiple regression analysis for the independent and dependent factors was used in order to carry out the study. After analyzing the results the study pointed out perceived risk (X1), convenience (X4) and relative advantage (X2) as the most significant influencing factors in mobile banking adoption because they had a strong influence on adoption of mobile banking than any other variable, for that reason, mobile banking customers tend to use mobile banking services based on its perceived ease of use, perceived usefulness, time and cost.

The results also confirmed that there existed a reasonable correlation between the independent variables (perceived risk, convenience and relative advantage) and the dependent variable meanwhile with Trust there was a negative correlation in influencing mobile banking adoption.

Regarding demographic factors, the findings revealed that, customers with age ranging from 29-34 were the majority users of mobile banking services, 58% have already subscribed to mobile banking, most of which use the service once a week and 36% use mobile banking for transferring funds. The influence of demographic variables such as gender, age and length of use on mobile banking adoption was not extensively explored to determine whether they can be influencing factors.

The research objectives and hypothesis were based on past studies by Triandis (1977), Davis et al (1989), Fishbein & Ajzen (1975), Triandis (1977), Bagozzi (1984) and Ajzen (1991). The objectives and hypothesis was proposed and answered through the data analysis. The findings fulfilled the main objective which was to identify the factors that influenced mobile banking adoption, it also provided proof for the second objective, that convenience does play a role in the mobile banking adoption and in the end all the objectives stated for the study were achieved. The result was similar in some cases with past studies and in other was not. The effects of perceived risk, relative advantage, trust and convenience towards influencing adoption of mobile banking services were observed.

5.3 Recommendations

The researcher of this study wishes to make the following recommendations:

First, It is recommended that, Banks in Tanzania invest massively in mobile banking and other information technology innovations, this will help to boost the adoption rate.

Second, There is a need to extensively educate customers on the use of electronic services such as internet banking and SMS (mobile) banking. The benefit of educating customers regarding mobile banking services is that the knowledge of the service will be readily available to the customers but most importantly the level of understanding will be high compared to the current situation and also because it will help to reduce the resistance to the service use something that

customers normally have when they are not informed about the benefits of a service.

Third, It is further recommended that, Bank form Information Technology departments that will study and monitor the growth and challenges of electronic banking services. This department will be very useful to the management of the bank because it will help to monitor the increase and decrease of the rate adoption and use of mobile banking services but also the challenges that customers face while using the service and the challenges that the bank itself faces while trying to ensure that the services reaches the customer efficiently and effectively and timely delivery of service.

5.4 Limitations

The following elements were the limitations that were observed during the course of research. The variables were limited to only four although there are so many other factors that can influence customer adoption of mobile banking services that were not examined in this study. This research would have provided better results if it included more variables such as social influence, complexity, perceived cost normative influence, social influence and attitude but also incorporating building factors such as gender, these factors can help the researcher to understand their influence on adoption.

The sample size was relatively small, the study should have included more participants from other regions in Tanzania or include respondents from other districts.

Most importantly, the mobile banking service is not so much of a new innovation for most countries abroad but there was a lack of information on the literature regarding mobile banking in Tanzania. Most of the literature material was from other countries but very few from Tanzania, this is a limitation in many ways because it limits the researcher in generalising the findings and as a result make the findings unreliable.

Another limitation to this study was the effectiveness of the questionnaire. Many factors were not explored because the questionnaire was brief in order to attract a large number of respondents, it was not easy to meet customers who were willing to participate in the survey or to complete all questions.

5.5 Areas of Further Research

The following are areas that other researchers could consider for future research:

In case the number of mobile banking users decreases in future, future researchers may investigate the barriers to adoption of mobile banking services in Tanzania and if the number of users increases future researchers may examine the factors that contributed to the increase in adoption of mobile banking services.

Consequently, a more in-depth research is required to identify other factors that influence adoption of mobile banking but also to investigate the factors that influence satisfaction of mobile banking services in Tanzania and other parts of the world.

The contribution of demographic factors such as age and gender toward the adoption of mobile banking services was not given much emphasis in this study, future researchers may investigate the influence of demographic factors in adoption of mobile banking services.

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APPENDICES

APPENDIX 1: Consent letter

This questionnaire is designed to generate information on the factors that influence consumer adoption of mobile banking in Tanzania.

Dear Respondents,

I am an MBA student of Open University of Tanzania (OUT) carrying out a research on the topic "factors influencing consumer adoption of mobile banking in Tanzania". The research is strictly for academic purposes only. Your experiences in accessing Mobile banking services will be valuable to this study and your information and support in answering the questionnaire will be handled with utmost confidentiality.

The researcher therefore is kindly requesting you to spare some of your time and provide answers to the following questions.

APPENDIX 11 : Questionnaire

SECTION A

This section intends to identify the Demographic Information (DI) of the customers.

(Please tick the relevant box according to your choice)

1. Specify your Gender : [ ] Female [ ] Male

2. Age : [ ] 18- 23 [ ] 24- 28 [ ] 29- 34 [ ] 35- 0nwards

3. How long you have been doing transactions with your bank?
   [ ] 1year [ ] 2 years [ ] More than 2 Year

4. Education Level
   i. Primary [ ]
   ii. Secondary [ ]
   iii. Technical and vocational education [ ]
   Iv. University [ ]
   v. No formal education [ ]

5. Are you subscribed to mobile banking service? [ ] Yes [ ] No

6. Do you use the Mobile Banking services? [ ] Yes [ ] No

7. What do you use mobile banking for?
   Transfer funds [ ]
   Check account balance [ ]
   Pay bills [ ]
   Cash withdrawal [ ]

8. How often do you use Mobile banking
   Daily [ ]
   Once a week [ ]

Once a month [ ]

Many times a month [ ]

SECTION B

This section intends to identify your opinion regarding Mobile banking Services. In a scale of 1-5 indicate if you SD (Strongly disagree), D (Disagree), UD (Undecided), A (Agree) or SA (Strongly agree) **Please *Tick in the appropriate box***

NO.	QN.	1	2	3	4	5
	PERCEIVED RISK (security, psychological and privacy risk)					
1	Security concerns prevent me from checking my account using mobile phone					
2	Using mobile banking is risky					
3	I fear misuse of personal information when using mobile banking services					
4	I fear that I will lose money when making an m-banking transfer					
5	I fear using mobile banking because I think people will access my account					
	RELATIVE ADVANTAGE (Time and cost)					
	The use of mobile banking has enabled me to accomplish my daily tasks quickly					
7	I can access the service anytime and anywhere I go.					
8	Mobile banking is the cheapest way of making banking transactions					
9	But mobile banking is still very expensive compared to other mobile payments systems.					
	TRUST (Ability, integrity and Goodwill)					
10	I believe banks are trustworthy					
11	Ability of the mobile banking service provider has important influence in use mobile banking service					
12	My mobile banking service provider has the ability to provide mobile banking service effectively					
13	Integrity of the service provider has important influence in choosing mobile banking service					
14	Goodwill of the service provider has important influence in choosing mobile banking service					
	CONVENIENCE (Perceived ease of use and perceived usefulness)					
15	Mobile banking service is complex than other electronic banking services so It will take me a lot of time to learn how to use it.					
16	The M-banking menu options are not enough for me, I would like to do more communication with my bank.					
17	mobile banking is convenient and the easiest to use					